

Strange hadron production in Au+Au collisions at RHIC Beam Energy Scan

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Abstract

1 Strangeness production has been suggested as a sensitive probe to the early-time
2 dynamics of the nuclear matter created in heavy-ion collisions. Transverse momentum
3 distributions and yields of strange hadrons provide important information about the
4 particle production mechanisms and help us to understand the properties of the created
5 medium and its evolution in these collisions.

6 Thanks to the high statistical data taken from the STAR BES II program in 2018-
7 2021, a series of measurements on production yields and properties of strangeness at low
8 energies are carried out. In this talk, the productions of K_S^0 , ϕ , Λ , Ξ^- , and Ω^- from
9 Au+Au collisions at $\sqrt{s_{NN}} = 3, 14.5, 19.6,$ and 27 GeV will be presented. The strange
10 hadron spectra, rapidity density distributions, particle ratios, and nuclear modification
11 factors will be reported. These results will be compared with those from higher collision
12 energies and discussed within the framework of model calculations.